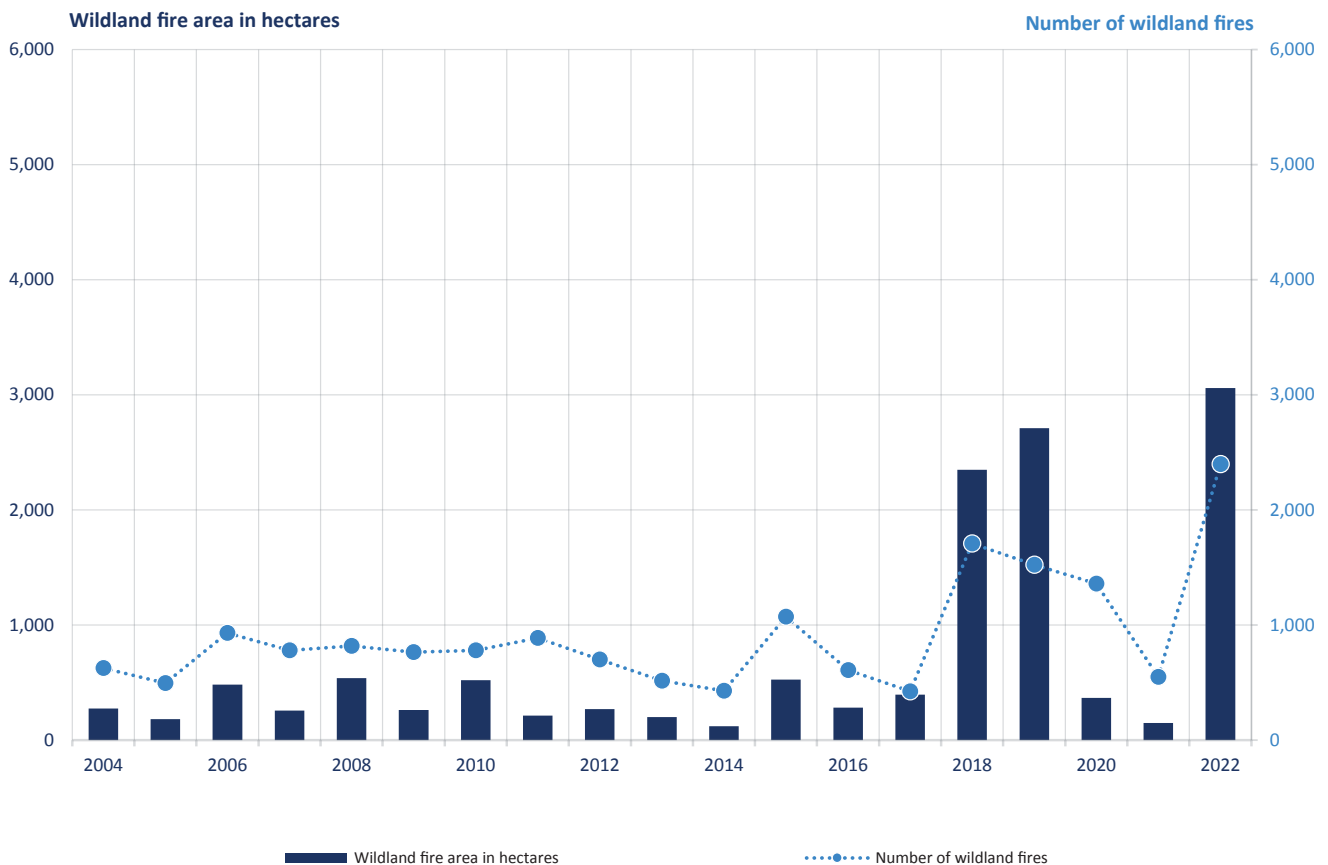




# Keeping emergency personnel safe during wildland fires

# Number of wildland fires and area damaged

The challenges of fighting forest and wildland fires are nothing new for fire departments. What is new, however, is that these fires are increasingly affecting large areas and are therefore becoming much more time-consuming and resource-intensive to combat. Over the past five years, the number of wildland fires has increased significantly.



Source: Federal Office for Agriculture and Food 2023 (ed.), Forest Fire Statistics of the Federal Republic of Germany 2022. Bonn (Table 7B)

## Wildland fires are different!

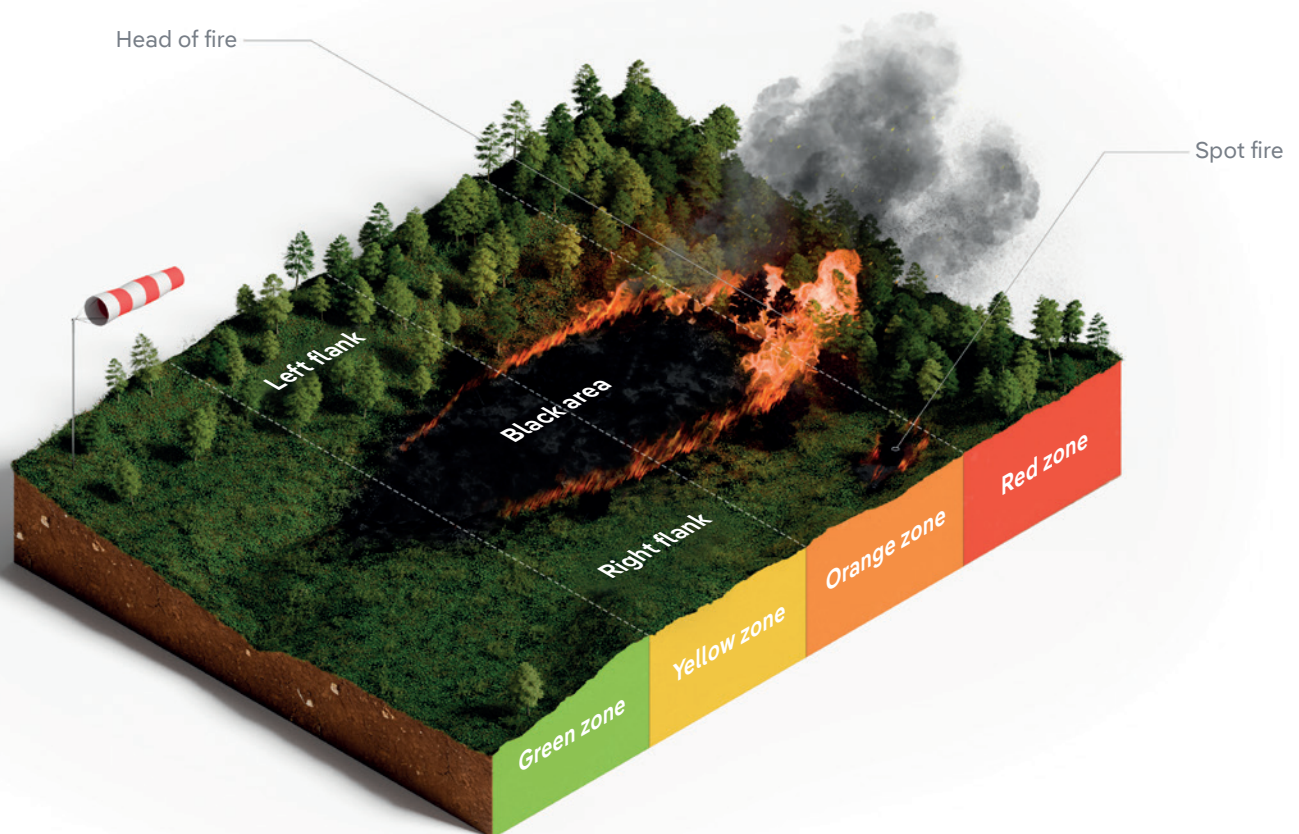
A dynamic environment with rough terrain, high temperatures, and long duration missions that require:

- Special tactics
- Special equipment
- Special (lightweight) PPE

The specific conditions associated with wildland fires result in an increased health risk in the danger zones.

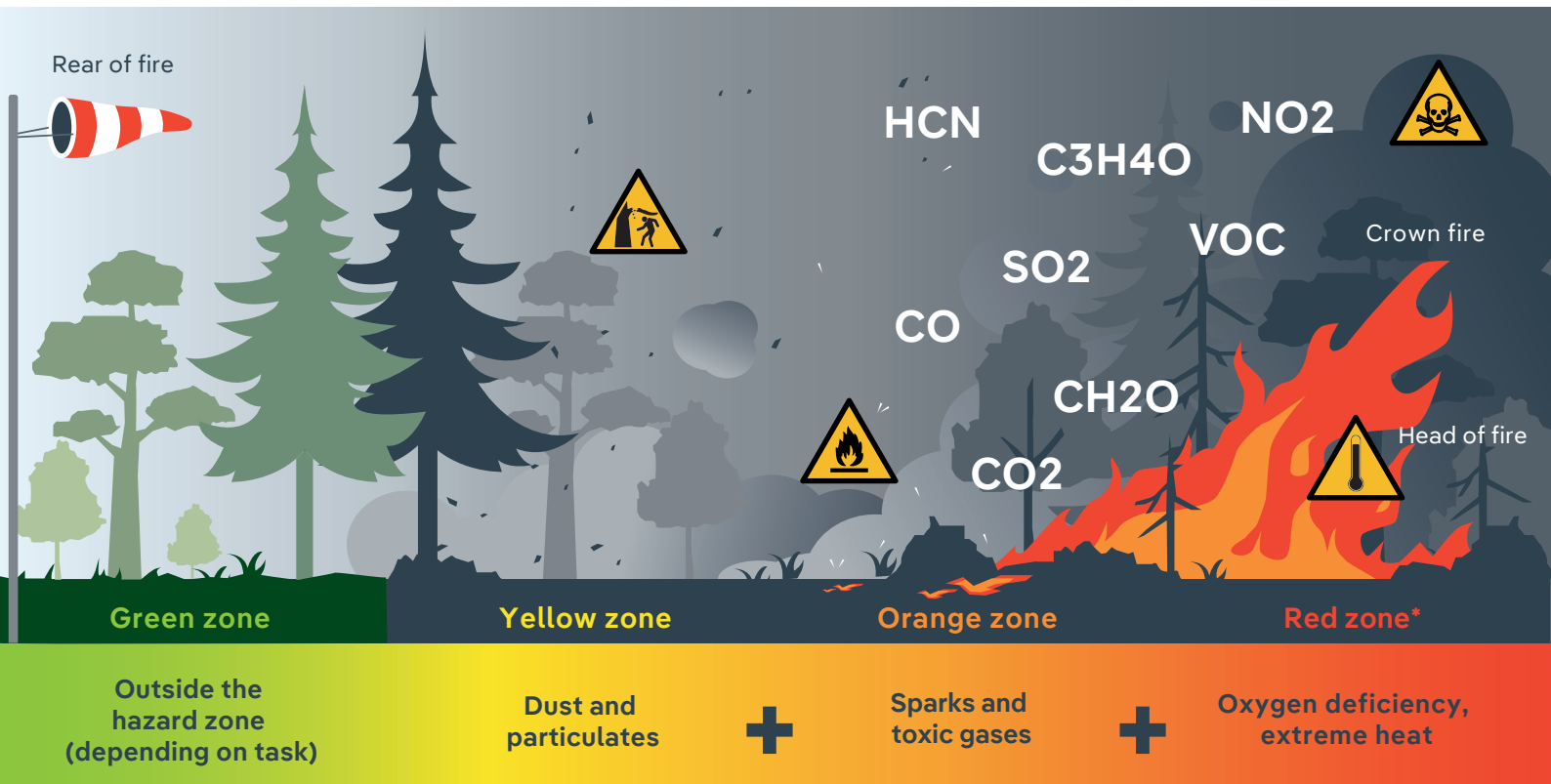
# Wildland fires: The basics

Wildland fire zones and terminology at a glance



The choice of PPE always depends on the specific conditions of the incident. The information provided here is intended as a general recommendation only. PPE should be selected based on the location, duration and nature of the task. It should also be easy to use, handle and clean. In some cases, single-use items may also be a suitable option.

# Danger zones during wildland fires



## Protective equipment for emergency personnel

Protective equipment	Green zone	Yellow zone	Orange zone	Red zone
Head protection				
Respiratory protection	P3	P3	ABEK P3	
Eye protection				
Portable gas monitor				
Other recommended products				
Thermal imaging camera				
Fire escape hood		CO P	ABEK CO P	ABEK CO P

\* Staying in the red zone should be avoided due to the danger and extreme strain on emergency personnel. If it is absolutely necessary to enter the zone for a short time, PPE must be worn in the same way as for indoor firefighting due to the hazards involved.

# Our solutions for fighting wildland fires



p. 6



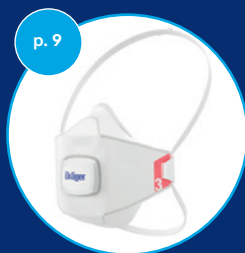
Dräger HPS 3500



p. 6



Dräger HPS SafeGuard



p. 9



P3

Dräger X-plore 1930 V  
FFP3



p. 10



P3  
ABEK P3

Dräger X-plore 3500



p. 11



ABEK P3

Dräger HPS 7000



p. 12



Dräger X-pect 4200



p. 14



Dräger Pac 6500



p. 16



Dräger UCF FireVista



p. 18



CO P  
ABEK CO P

Dräger PARAT escape hood



p. 18

Dräger CBS 1000



p. 19

Dräger Wildland Fire  
Sandbox

# Head protection



D-37522-2020

## Dräger HPS 3500 – One helmet for all outdoor missions:

- Forest and wildland firefighting, technical assistance and high-altitude rescue
- Optimal protective function thanks to high mechanical resistance
- Very light weight: as low as approx. 710 g
- Adjustable and sealable vents control airflow and regulate temperature inside the helmet for additional comfort
- Very comfortable to wear, even for long periods
- Extensive range of accessories
- Multiple approvals, including EN 16471:2014 forest and wildland fire fighting



D-31110-2020

## Dräger HPS SafeGuard – Designed for versatility:

- Suitable for all firefighting and rescue operations, including indoor firefighting
- Particularly lightweight for a helmet in its class (as low as approx. 1250 g)
- Integrated face shield
- Custom-made accessories
- Multi-standard approval, including EN 16471:2014 (forest and wildland firefighting), EN443:2008 (indoor firefighting helmets), NFPA 1971: 2018 and NFPA 1951: 2020

## Ordering information

Item	Color (paintwork)	Art. no.
<b>Dräger HPS 3500</b>		
Dräger HPS 3500 Premium	bright yellow	R62646
Optional: Reflective strip HPS 3500	silver	R58428
Optional: Neck protector HPS 3500 Nomex (scarf version)		R58434
<b>Dräger HPS SafeGuard</b>		
Dräger HPS SafeGuard Medium	fluorescent yellow (similar to RAL 1016)	VN00722
	fluorescent yellow (similar to RAL 110)	VN00981
Dräger HPS SafeGuard Extend EN	fluorescent yellow (similar to RAL 1016)	VN00982
	fluorescent yellow (similar to RAL 110)	3701625
	bright yellow	3701627



# Respiratory protection



## Dräger X-plore 1930 V

Dräger X-plore 1930 V is a high-performance, single-use, particle-filtering half mask for **protection against fine dust and particles**. This premium dust mask is available in two sizes and combines ease of use, outstanding comfort and an optimal fit. For maximum safety – even when wearing eyeglasses.

### Ordering information

Item	Art. no.
Dräger X-plore 1930 V FFP3 (10 pcs.)	3951935

## Half mask Dräger X-plore 3500

### Advantages over an FFP mask:

- Thanks to the soft materials and ergonomic shape, the mask is a perfect fit for nearly any wearer
- Filter material is better protected from radiant heat and flying sparks thanks to plastic housing with slatted design.
- Can be used multiple times (half mask can be reprocessed as often as desired, usable for up to six months)
- Always protected. Remove the mask without removing your helmet.



### “Drop-Down” function

By opening the hook fastener on the neck strap, you can remove the half mask from your face while the headband remains on your head. This means you can remove the mask in smoke-free areas without having to take off your helmet. A significant safety advantage, especially when fighting wildland fires.





## Frequently asked questions about half masks and breathing filters

The Dräger X-plore 3500 half mask with P3 or A1B1E1K1 Hg P3 filters is classified as an FFP mask: Device group 1 (formerly G26-1). The physical fitness and overall health of deployed personnel must be suitable for the conditions they'll face during wildland fires. This applies even if respiratory protection is not required, as exposure levels can still be extremely high.

### How long can I use the filters?

It is not possible to provide generally applicable guidelines for the duration of use, as this depends heavily on external conditions (for example, the type and concentration of the pollutant, the user's air requirements, humidity and temperature).

- Gas filters and combination filters must be replaced at the latest when the user detects a breakthrough (smell, taste or irritation).
- Combination filters, particle filters, unencapsulated particle filters or pad particle filters must be replaced if there is a significant increase in breathing resistance.

### How long can used filters be stored?

The maximum storage time for respiratory filters that have been opened for the first time is 6 months, provided that the filter is packed in an airtight container after use.

### What kind of protection does an ABEK1Hg-P3 combination filter offer?

<b>A</b>	Organic gases and vapors with a boiling point > 65 °C
<b>B</b>	Inorganic gases and vapors (for example, chlorine, hydrogen sulfide, hydrogen cyanide); not effective against carbon monoxide
<b>E</b>	Sulfur dioxide, hydrogen chloride (hydrochloric acid) and other acidic gases
<b>K</b>	Ammonia and organic ammonia derivatives
<b>Hg</b>	Mercury vapor
<b>P3</b>	Fine dust and particles with a filtration efficiency of at least 99%

### Can the half mask be cleaned and reused after use?

Yes, the half mask can be reprocessed manually using the same cleaning agents and disinfectants as the Dräger full-face mask.

## Training courses offered by the Dräger Academy

Training:	Keeping emergency personnel safe during wildland fires (online training)
Item number	3737892
Price	Please contact your local Dräger office
Brief description	After successfully completing this digital training course, participants will be able to assess the dangers posed by respiratory toxins in wildland fires and take the necessary protective measures. You can use the respiratory protection equipment included in the Dräger Wildland Fire Set and perform maintenance work after use in accordance with the manufacturer's instructions.



# Respiratory protection

Now also comes  
with full-vision goggles



## Dräger Wildland Fire Set with P3 Particle Filter and Safety Goggles – including accessories:

The new Wildland Fire Set, compliant with AGBF-DFV Technical Recommendation No. 67: Respiratory protection **Protection level P3 against fine dust and particles** and full-vision safety goggles in accordance with EN 166.

It includes a Dräger X-plore 3500 half mask with particle filters that fits securely and comfortably even when worn for long periods and during strenuous activity. It can be lowered during breaks without having to remove the helmet (drop-down function) – an important safety feature.

The ventilated, full-vision X-pect 4200 goggles are a perfect match for the half mask. With their fog-free and scratch-resistant coating, they offer ideal eye protection for firefighters. They come with a carry pouch and cleaning wipes or easy transport and cleaning.

## Ordering information

Item	Art. no.
<b>The Dräger Wildland Fire Set contains</b>	
– Dräger X-plore 3500 half mask (1 pc.)	
– Dräger P3 R bayonet particle filters (2 pcs.)	
– Dräger X-pect 4200 full-vision goggles (1 pair)	
– DAISY quick cleaning wipes (10 pcs.)	
– Blue mask pouch (1 piece)	
– Wildland Fire Set P3 size S	3720709
– Wildland Fire Set P3 size M	3720710
– Wildland Fire Set P3 size L	3720708



### Dräger Wildland Fire Set with ABEK1Hg-P3 Combination Filters and Safety Goggles – including accessories:

In addition to the Wildland Fire Set with P3 Filter, the Wildland Fire Set with Combination Filter protects against **harmful particles, fine dust and dangerous gases**. The combined particle and gas filter with protection class ABEK1Hg protects against gases ([see table on page 9](#)) and minimizes the irritating effect of fire smoke on emergency personnel.



### Dräger FPS 7000 with A2B2E2K2Hg-P3 Combination Filters

A full-face mask (normal pressure) with A2B2E2K2Hg-P3 combination filter **for protection against fine dust, particles and hazardous gases can also be used for fighting wildland fires**. It offers greater protection, but also places more strain on emergency personnel than a half mask.

**Attention:** A full-face mask (positive pressure) must not be used with filters for prolonged activities involving high physical exertion (increased exhalation resistance).

The combination filter does not protect against carbon monoxide (CO) or carbon dioxide (CO<sub>2</sub>). However, wearing it makes it more difficult to notice smoke. Therefore, we recommend the additional use of a CO measuring device that warns of increased carbon monoxide concentrations when DGUV (German Social Accident Insurance) warning local OH&S thresholds are exceeded.

## Ordering information

Item	Art. no.
<b>Particle &amp; gas filter protection with full mask and combination filter with standard Rd40 threaded connection</b>	
FPS 7000 normal pressure full-face breathing protection mask (Rd40)	R57823
Combination filter with Rd40 round thread connection for normal pressure masks (EN 14387) 1140 A2B2E2K2Hg-P3 R D	6738797
<b>The Dräger Wildland Fire Set contains</b>	
– Dräger X-plore 3500 half mask (1 pc.)	
– Dräger X-plore ABEK1Hg-P3 combination filters (2 pcs.)	
– Dräger X-pect 4200 full-vision goggles (1 pair)	
– DAISY quick cleaning wipes (10 pcs.)	
– Blue mask pouch (1 piece)	
– Wildland Fire Set ABEK1Hg-P3 size S	3707009
– Wildland Fire Set ABEK1Hg-P3 size M	3707010
– Wildland Fire Set ABEK1Hg-P3 size L	3707008

# Eye protection

## Dräger X-pect 4200

The X-pect 4200 full-vision goggles feature a shatterproof polycarbonate lens with a wide field of view.

### Product advantages:

- Suitable for eyeglass wearers
- Closed seal provides all-around protection for the eyes
- Suitable for protection against droplets
- Robust full-vision goggles
- Optimal combination possibilities with, for example Half masks
- 99.9% UV protection
- Integrated indirect ventilation
- Includes anti-scratch and anti-fog coating
- Adjustable, wide and elastic headband
- Best optical class for safety glasses (Class 1) for distortion-free vision



## Ordering information

### Item

Dräger X-pect 4200 (5 pcs.)

### Art. no.

3717311



Dräger

Dräger



# Gas measurement technology



## Dräger Pac 6500

The robust Dräger Pac 6500 is the perfect choice for monitoring dangerous carbon monoxide concentrations during firefighting operations.

- **For measuring carbon monoxide (CO)**
- **High measurement performance and fast sensor response times**
  - High sensitivity: measures concentrations as low as 5 ppm
  - High performance up to concentrations of 2,000 ppm
  - Sensor with certified metrological performance
- **Three alarm thresholds (20, 60, 200 ppm)**
- **Particularly durable and cost-effective**
  - Maintenance-free for 2 years
  - 2-year battery lifespan with replaceable battery
  - Expected sensor life > 5 years
  - Waterproof (IP68-rated)
- **Configurable to local OH&S requirements**
- **Bluetooth integrated and activated**

## Data sheet DGUV FBFHB-021

CO concentration		Measures/Behavior
> 20 ppm	Attention threshold	<b>Attention: CO present!</b> Alarm level A1 can be acknowledged with OK
> 60 ppm	Hazard threshold	<b>Attention: Elevated concentration of CO present</b> Alarm level A2 can be acknowledged with OK
> 200 ppm	Withdrawal threshold	<b>Attention: Dangerous concentration of CO present</b> Alarm level A3 can only be acknowledged after retreating to a safe area
> 500 ppm	:	<b>Attention: Acute danger from CO!</b> All measures must be carried out using self-contained breathing protection.

## Ordering information

Item	Art. no.
Dräger Pac 6500 CO BOS	VN00888

# Other recommended products



D-1780-2021

## Dräger UCF FireVista – Thermal Imaging Camera

Small, lightweight, robust and operable with just one button: The compact Dräger UCF FireVista Thermal Imaging Camera delivers excellent image quality even under the most challenging conditions. The camera is ready for immediate use in firefighting, hot spot detection and search and rescue. The camera allows you to navigate safely in smoke-filled environments, both indoors and outdoors.



D-85039-2013

## Dräger PARAT escape hoods

The Dräger PARAT – designed always with the fastest possible escape in mind.

- Enhanced usability and comfort
- Robust housing and sealed filter
- Protects for at least 15 minutes against toxic industrial and/or fire gases, vapors and particles

### PARAT 5550

Product type	Fire escape hood in flame-resistant holster (specially designed for emergency services)
Protection against	Carbon monoxide, vapors and particles
Filter type	CO P2
Escape time	min. 15 minutes
Service life	16 years with filter replacement after 8 years

### PARAT 7520

Product type	Fire and industrial escape hood in soft pack
Protection against	Fire and industrial gases, vapors, particles
Filter type	A1B1E1K1 CO P3
Escape time	min. 15 minutes
Service life	16 years with filter replacement after 8 years

## Ordering information

Item	Art. no.
<b>Thermal imaging camera</b>	
Dräger UCF FireVista	3719350
<b>Escape hoods</b>	
Dräger PARAT 5550	R59445
Dräger PARAT 7520 (Soft Pack)	3721329



Dräger

Dräger

Dräger

# Other recommended products

## CBS 1000 Cabin Breathing Protection System

The Dräger CBS 1000 Cabin Breathing Protection System is a compact solution for equipping the cabins of emergency vehicles with short-term respiratory protection. The system provides an independent breathing air supply for up to four people. Lung demand valves connected to extended length medium pressure hoses, can be connected to full face or half masks depending on the environment. It is easy to install, easy to use and can be used in firefighting, tunnel rescue or mine rescue operations.



## Ordering information

Item	Art. no.
<b>Dräger CBS 1000 basic unit</b>	<b>6927200</b>
Dräger CBS 1000 PPE Set: half mask and negative-pressure regulator with long medium-pressure hose and Nomex mask pouch	6927210
Dräger CBS 1000 PPE Set: Dräger Panorama Nova full-face mask and negative-pressure regulator with long medium-pressure hose and Nomex mask pouch	6927211
Dräger CBS 1000 PPE Set: Dräger FPS 7000 full-face mask and negative-pressure regulator with long medium-pressure hose and Nomex mask pouch	6927213

Provided by the customer:

- Installation space in the vehicle
- Installation in the vehicle according to the installation instructions provided

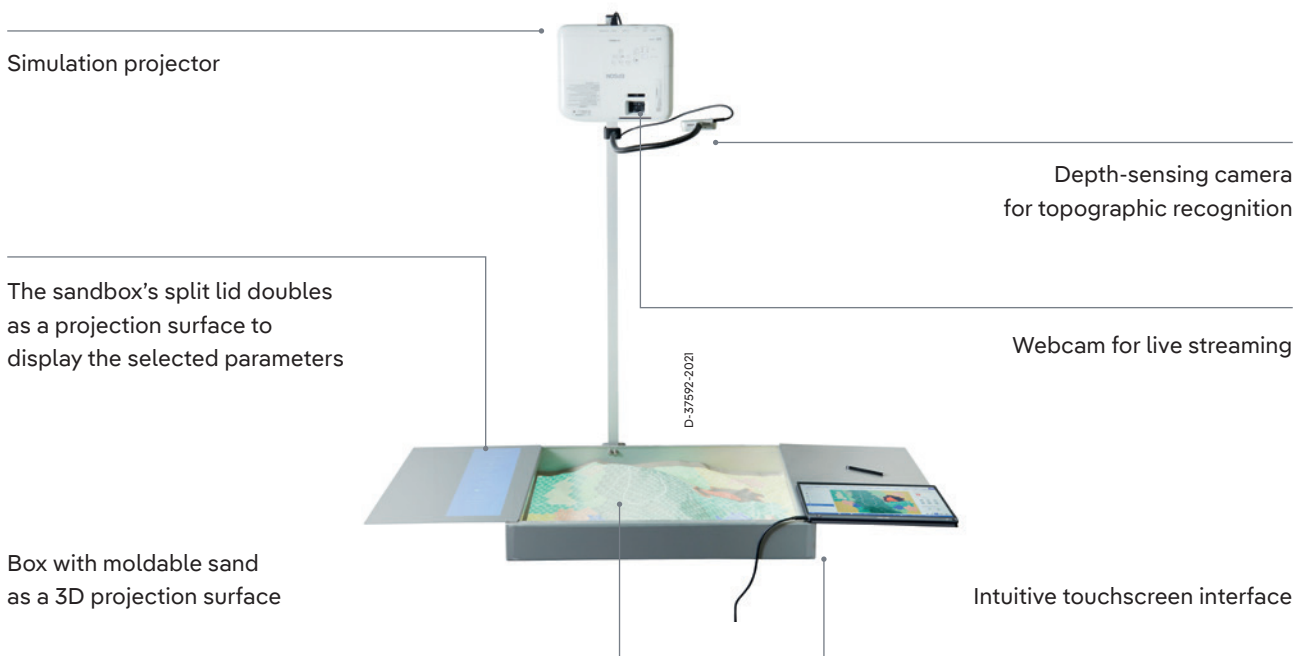
## Wildland Fire Sandbox WFS 1000

The Dräger Wildland Fire Sandbox WFS 1000 is an efficient training tool for theoretical and tactical firefighting training. Developed in collaboration with experts, its software-based simulation offers a wide range of scenarios for different training levels in fighting forest and wildland fires.

The Dräger WFS 1000 is optimally designed for the practical theoretical training and further education of firefighters, with a special focus on forest and wildland fires. It offers a wide variety of exercise scenarios and clear, visual simulations for both beginners and advanced users. The system covers everything from clear demonstrations of wildland fire hazards for the public to advanced tactical training for command-level officers.

### Product advantages:

- Solid theoretical training
- The integrated software enables repeatable, interactive simulation of fire behavior, taking into account weather conditions, terrain features and firefighting tactics.
- Recognized calculation model for wildland fire behaviour
- Simple, intuitive operation
- Highly realistic



## Ordering information

### Item

Wildland Fire Sandbox

### Art. no.

On request

Not all products, features, or services are for sale in all countries. Trademarks mentioned herein are the property of its respective owner. Trademarks may be owned by Drägerwerk AG & Co. KGaA (Dräger) or its affiliates in certain countries and not necessarily in the country in which this material is released. Visit [www.draeger.com/trademarks](http://www.draeger.com/trademarks) for the current status of Dräger's trademarks.

**Corporate Headquarters**

Drägerwerk AG & Co. KGaA  
Moislinger Allee 53–55  
23558 Lübeck, Germany  
🌐 [www.draeger.com](http://www.draeger.com)

**Canada**

Draeger Safety Canada, Ltd  
2425 Skymark Ave, Unit 1  
Mississauga, Ontario, L4W 4Y6  
☎ +1 905 212 6600  
Toll-free +1 877 Dräger 1  
(+1 877 372 4371)  
☎ +1 877 651 0902  
☎ +1 800 329 8823



Locate your Regional Sales  
Representative at:  
[www.draeger.com/contact](http://www.draeger.com/contact)